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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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EXAMINER

PATENT FUNDING
PATENT LAW DEPARTMENT
PATENT CENTER
1000 MURKIN AVENUE
CLEVELAND OH 44114-2000

ART UNIT	PAPER NUMBER
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4

DATE MAILED:

07/25/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/604,218

Applicant(s)

HIDAYETOGLU, TULIN
KUZULUGIL

Examiner

Elena Tsoy

Art Unit

1772

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133)
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 16-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s) ____
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 6) ☐ Other:

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-15 drawn to a friction material, classified in class 260, subclass 998.13.
 - II. Claims 16-19 drawn to a method for making a friction material, classified in class 428, subclass 98.

Distinctness

The inventions are distinct, each from the other because:

2. Inventions II and I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by materially different process comprising a step of distributing a plurality of heat conducting elements *evenly* in a resin matrix.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with Daniel S. Kalka on September 25, 2001 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-15. Affirmation of this election must be made by applicant in replying to this Office action. Claims 16-19 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

6. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Specification

7. The disclosure is objected to because of the following informalities: "the composite 16" appears to be incorrect. See page 5, lines 26-27.

For examining purposes "the composite 16" is interpreted as -- the composite 18 -- .

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. **Claims 1-7, 9-15** are rejected under 35 U.S.C. 103(a) as being unpatentable over Shibata et al (US 5,004,497) in view of Darfler (US 5,498,462).

Shibata discloses a friction material for brake pads, clutch facing with improved wear resistance and thermal conductivity (See column 1, lines 11-34, 55-56; column 2, lines 1-3; column 4, lines 1-4), comprising:

a functionally graded material including a composite material having heat and wear resistant fibers such as carbon fibers (See column 4, line 20), fibrillar aramid fibers (e.g., Kevlar fibers, See column 3, lines 8-10) therein impregnated with a resin (See column 1, lines 55-56; column 2, lines 56-58; column 3, lines 64-68; column 4, lines 1-4);

a plurality of heat conducting elements such as copper powder, copper alloy powder (See column 3, lines 63-66; column 4, lines 31-65) situated within said functionally graded material wherein said heat conducting elements transfer heat away from one surface of said functionally graded material to another. See column 3, lines 63-68.

Shibata fails to teach that:

the heat conducting elements are positioned in a predetermined arrangement (Claims 2, 11), e.g., substantially normal to a friction (engaging) surface of said functionally graded material (Claims 3, 15).

However, Darfler teaches that effectiveness of heat transfer depends on orientation of heat conducting elements: the most effective heat transfer occurs when heat conducting elements are positioned substantially normal to a friction (engaging) surface of a friction material to transfer heat away from the friction (engaging) surface of the friction material. See column 8, lines 42-52.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have arranged heat conducting elements of Shibata in a predetermined orientation.

e.g., substantially normal to a friction (engaging) surface of a friction material, in order to provide an effective transfer of heat away from the friction (engaging) surface of the friction material, as taught by Darfler.

10. **Claim 8** is rejected under 35 U.S.C. 103(a) as being unpatentable over Shibata et al (US 5,004,497) in view of Miyamoto (US 6,001,440).

Shibata, as been discussed in paragraph 9, fails to teach a concentration of the heat conducting elements varying from a first surface to a second surface.

However, Miyamoto teaches that by varying a concentration of heat conducting elements copper powder (See column 2, line 60) from a first surface to a second surface in a heat-conductive film, e.g., making concentration gradient in the direction of the thickness of the film (See column 2, lines 36-43), deterioration of mechanical properties of the film can be prevented while preserving a high level of thermal conductivity. See column 2, lines 37-42; column 6, lines 18-23, 32; column 7, lines 13-28.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided varying a concentration of heat conducting elements in a friction material of Shibata in order to prevent deterioration of mechanical properties while preserving a high level of thermal conductivity of the friction material, as taught by Miyamoto.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elena Tsoy whose telephone number is (703) 605-1171. The examiner can normally be reached on 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon can be reached on (703) 308-4251. The fax phone numbers for the

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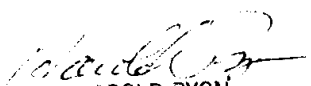
organization where this application or proceeding is assigned are (703) 305-3599 for regular communications and (703) 872-9310 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

ET

Elena Tsoy
Examiner
Art Unit 1772

September 25, 2001


HAROLD PYON
SUPERVISORY PATENT EXAMINER
1772

9/26/01